

REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 1 and 3-8 remain in the application. Claim 1 has been amended. Claims 2 and 9-10 have been cancelled.

In the second paragraph on page 2 of the above-mentioned Office action, claims 1 and 3-6 have been rejected as being anticipated by Henry et al. (US Pat. No. 4,570,172) under 35 U.S.C. § 102(b).

In the first paragraph on page 4 of the above-mentioned Office action, claim 7 has been rejected as being unpatentable over Henry et al. in view of Mensz (US Pat. No. 5,422,902) under 35 U.S.C. § 103(a).

In the fifth paragraph on page 4 of the above-mentioned Office action, claim 8 has been rejected as being unpatentable over Henry et al. in view of Liau et al. (US Pat. No. 4,784,722) under 35 U.S.C. § 103(a).

In the first paragraph on page 5 of the above-mentioned Office action, claims 9-10 have been rejected as being unpatentable

over Henry et al. in view of Camras et al. (US Pat. Applic.
Pub. No. 2002/0093023) under 35 U.S.C. § 103(a).

The rejections have been noted and claim 1 has been amended in
an effort to even more clearly define the invention of the
instant application. Support for the changes is found in
previous claim 9.

Before discussing the prior art in detail, it is believed that
a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

said second semiconductor layer including an
electroluminescent region emitting visible light of a
first color having a first wavelength;

said first semiconductor layer having a first band gap
and being specifically doped to form states of allowed
energy levels within said first band gap, said
electroluminescent region having a second band gap, said
first band gap being smaller than said second band gap;

said first semiconductor layer absorbing part of the
visible light of the first color and said first
semiconductor layer re-emitting visible light of a second
color having a second wavelength by a radiant transition
involving said allowed energy levels within said first
band gap, the second color being different from the first
color, and the second wavelength being longer than the
first wavelength; and

said first semiconductor layer and said second
semiconductor layer being configured to emit white light
from said semiconductor chip by mixing the emitted and
the reemitted visible light.

It is noted that the reference Henry et al. is not a newly cited reference, but it was first cited by the Examiner in the Office action dated June 5, 2002. The Examiner has never used this reference as a basis for an anticipation rejection until now. With the reference Henry et al. in hand, the Examiner indicated, during a telephone conversation with the patent agent for Applicants, that claim 1 would be allowable if combined with claim 9. It is noted that the MPEP requires the Examiner to avoid piecemeal examination and should reject each claim on all valid grounds available (see MPEP 707.07(g)). The anticipation rejection by the reference Henry et al. was available at the time when it was first cited.

Henry et al. describe a component based on GaAs or GaAlAs, which emits at 840 nm or 845 nm (compare Fig. 4), namely in the infrared spectral range (see column 4, lines 3-33). In contrast, claim 1 of the instant application clearly recites that the first and second semiconductor layers emit visible light. Further, Henry et al. do not disclose that allowed energy levels are formed within the band gap in one of the semiconductor layers by targeted doping. Rather, in the device described in Henry et al. the band gap of the re-emission layer is slightly less than the band gap of the emission layer, which can be reached, for example, by an addition of 5% aluminum (see column 3, line 63).

Since Henry et al. neither disclose a device that produces visible light nor describe semiconductor layers that have allowed energy levels within the band gap, it is naturally clear that a semiconductor chip emitting only in the infrared spectral range cannot produce white light.

Also a combination of Henry et al. with Mensz or Camras et al. does not show or suggest the claimed invention. Although Mensz describes an ohmic contact for a component based on ZnSe or ZnCdSe, this kind of component emits typically in the blue or blue green spectral range. A corresponding emission wavelength can certainly not be identified. In any case, Mensz does not disclose or suggest how this kind of semiconductor component could produce white light.

Camras et al. describe in paragraph [0072] a device with several semiconductor chips, which are deposited on a common substrate, for example a printed circuit board. Camras et al. further disclose that white light can be produced by the mixing of red, green, and blue light or of blue and amber light. However, Camras et al. do not disclose a combination of materials, which are suitable to integrate in a common semiconductor chip, as recited in claim 1 of the instant application. It is noted that, according to claim 1 of the

instant application, the semiconductor body has a first semiconductor layer and an adjacent second semiconductor layer so that the two semiconductor layers are a part of a single common semiconductor chip.

In particular, neither Mensz nor Camras et al. disclose the production of white light with two semiconductor layers in which one of the layers absorbs and reemits the light produced by the other semiconductor layer, thus forming white light through the mixing of the lights emitted or reemitted by the two semiconductor layers.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art and since all of the dependent claims are dependent on claim 1, they are believed to be patentable as well. Claims 9-10 have been cancelled.

In view of the foregoing, reconsideration and allowance of claims 1 and 3-8 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate a telephone call

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so that, if possible, patentable language can be worked out.
In the alternative, the entry of the amendment is requested as
it is believed to place the application in better condition
for appeal, without requiring extension of the field of
search.

If an extension of time for this paper is required, petition
for extension is herewith made. Please charge any fees which
might be due with respect to 37 CFR Sections 1.16 and 1.17 to
the Deposit Account of Lerner and Greenberg, P.A., No. 12-
1099.

Respectfully submitted,



For Applicants

WERNER H. STEMER
REG. NO. 34,956

YC

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Lerner and Greenberg, P.A.
Post Office Box 2480
Hollywood, FL 33022-2480
Tel: (954) 925-1100
Fax: (954) 925-1101